DENVER WATER

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PROFESSIONAL SERVICES
REQUEST FOR PROPOSALS

Strontia Springs – Sediment Management Concept Development

Project Description

The **Strontia Springs – Sediment Management Strategy** is a phased program that will span several years of analyses, design, and construction; followed by implementation and operation. This Request For Proposal (RFP) is for the development of an alternative into concept level designs (including operating plans) to support analyses of the environmental impacts; permitting feasibility; system and operations impacts; and life-cycle benefit-cost analyses. Based on the analysis, the alternative will advance to final design.

The anticipated duration of this concept development phase is six months. The selected Consultant may be retained for future phases based on performance and if mutually agreed by both Denver Water and the Consultant.

Background and History

The Strontia Springs Dam and Reservoir is an on-stream facility located on the South Platte River in Jefferson and Douglas Counties, Colorado, in the Pike National Forest. The dam and reservoir, owned and operated by Denver Water, was completed in 1982 and impounds 7,700 acre-feet of water.

Sedimentation of Strontia Springs Reservoir has increased over time and became an issue after the Buffalo Creek Fire in May of 1996, and the subsequent storm in July 1996. The immediate catchment basin above Strontia Springs Reservoir has experienced significant fire events resulting in over 78,000 acre-feet of burn area, or about 15% of the total area within the immediate catchment. The burn areas have significantly increased the sediment loading within the Strontia Springs Reservoir. In order to assure continued operation of the facility and to reduce future maintenance cost, Denver Water wishes to develop a plan to remove sediment from the reservoir.

The most recent sediment survey found that 10% (approximately 750 acre-feet as of 2015) of reservoir volume has been lost, and sediment accumulation continues at a rate of approximately 65,000 cubic yards (40 acre-feet) per year. At this rate, the reservoir will be completely filled in with sediment by 2140, and usability of the reservoir will be severely impacted by 2075.

Although major operational impacts may not occur until 2075, Denver Water's interest is to manage Strontia Springs as a sustainable resource and create a sediment management plan. Postponing sediment management activities far into the future will compound the existing problem and result in a much larger removal project which may not be practical or may disrupt operations to a level which compromises the purpose and function of the reservoir.

Project Objectives

The following specific project objectives have been identified:

- Develop a concept design to make use of the by-pass tunnel used to construct the dam by removing the concrete plug, placing slide gates on the upstream and downstream ends of the tunnel, and flushing sediment through the tunnel. The sediment flushed through the by-pass tunnel would be sent downstream and possibly captured and removed at the Conduit No. 20 diversion structure where it could be transported out of Waterton Canyon to an off-site storage site or sold for commercial use.
- Define specific permitting requirements, constraints, and sluicing schedule.
- Develop operation plans for operation of the facility to manage sediment and maintain function.
- Provide an Opinion of Probable Construction Cost (OPCC) for the concept design.

Consultant Scope of Services

The concept level analysis and design will be completed by a Consultant with input from Denver Water Engineering, Planning, Legal, and Operations staff. The Consultant's responsibilities will include providing, monitoring and maintaining a project management work plan and schedule, sediment management analyses, design and drafting, cost estimating, and the compilation of a tentative construction schedule. The Consultant is required to follow the most current Denver Water Capital Projects Procedures Manual (CPPM), the most current Denver Water Capital Projects Construction Standards (CPCS), the most current Denver Water CAD standards, and the most current Denver Water Administration Standards.

Consultant Qualifications

The consulting firm shall be experienced in civil, structural, mechanical, blasting, and environmental permitting.

Owner Responsibility

The Owner will provide to the Consultant all available relevant information to aid in the design process. This includes, but is not limited to:

- Previous studies and relevant information (e.g., drawings, specifications, photos)
- Provide review comments within agreed upon schedules
- Provide reservoir sediment surveys

Project Assumptions

The following assumptions were made in the development of this Scope of Work:

- The project execution shall follow the Owner's CPPM located on http://www.denverwater.org.
- Drawings shall be provided in electronic media on Windows compatible Hi-Speed USB Flash Drives and in quality hard copy media. AutoCAD Drawings shall be in accordance with Owner's Drafting Standards and shall include, but not be limited to, the Standards located online in the Owner's CPPM.
- Attend a meeting with Owner's Drafting and Administration groups to discuss the Owner's Standards.

Project Schedule

Owner may elect to follow the proposals with a formal questionnaire and/or interview to assist with the proposal evaluation. Final selection of a Consultant will be based upon the selection criteria detailed on page 7.

The anticipated Project Schedule is summarized below:

- June 23, 2016 Request for Proposals Issued
- July 12, 2016 Proposals Due
- August 1, 2016 Notice to Proceed Issued to Selected Consultant
- January 31, 2017 Project Completion

Any requests for clarification or additional information regarding submission of this RFP shall be submitted in writing via e-mail to brett.cochran@denverwater.org. Written requests for interpretation, clarification, and/or additional information must be received no later than 2:00 PM local time, Friday, July 1, 2016.

Scope of Services

Task 1 – Project Management and Administration

Project Management and Administration includes the following activities:

- General Project Management
- Project Management Plan
- Project Controls and Reporting
- Project Meetings

Task 1.1: General Project Management

Time for this task is allocated to the Consultant Project Manager to oversee and administer the project.

Deliverables:

The following deliverables will be provided as part of Task 1.1.

- *Cost Loaded Schedule/Work Breakdown Structure time allocation.*

Task 1.2: Project Management Plan

The Project Management Plan will document the key project information required by all Consultant Project Team members to assist them in executing the project to meet the required objectives; on-time, on-budget, quality, and meeting the Owner's critical success factors. The key elements of the project plan are described below:

- Project Charter which will establish the project's goals, objectives, and critical success factors.
- Consultant Project Team members, their roles, and responsibilities. This will also include the staffing plan (management, engineering, QA/QC, etc.)
- Scope of Services with Work Breakdown Structure.
- Baseline Planned Value (PV) schedule to be used for Earned Value (EV) reporting.
- Project budgets.
- Communications plan.
- Project documentation plan and file structure.
- Change management process.

Deliverables:

The following deliverables will be provided as part of Task 1.2.

- *Project Management Plan (which includes the QA/QC plan).*
- *Progress Reports.*

Task 1.3: Project Controls and Reporting

Monthly invoices will be prepared and submitted to the Owner in an approved format. Invoices shall include the following broken down by task, Prime Consultant, and Sub consultants:

- Total contract amount.
- Detailed charges for the current invoice period.
- Total charges to date.
- Previous billings.
- Outstanding balance.
- Current amount remaining.
- Total amount due.

Consultant shall be responsible for management of the Consultant and Sub consultant Project Team's overall project controls, actively coordinating with Owner's Project Manager to manage:

- Project costs.
- Project Schedule.
- Document control.

Monthly project status reports shall be prepared and submitted to the Owner, along with the monthly invoices. These reports will include:

- Summary of services completed since the previous report.
- Current Project Schedule and budget status.
- Project issues and potential change logs.
- Milestones and/or deliverables scheduled in the coming month.

This task also includes periodic project review by Consultant management to assure that the project is meeting the Owner's critical success factors, is on schedule, and within budget.

Deliverables:

The following deliverables will be provided as part of Task 1.3.

- *Monthly invoices.*
- *Monthly Project Status Reports.*

Task 1.4: Project Meetings

Project meetings include the key Project Team stakeholders and, as needed for the current topic, project stakeholders.

- Discuss ongoing issues and conflict resolution.
- CAD Standards and Administration's Standards meeting.
- Owner and Consultant Management review meetings.
- Monthly Owner and Consultant Team meetings.
- One meeting with the United States Army Corps of Engineers (COE) to discuss required permits. This meeting will include personnel from Denver Water Engineering and Planning departments.

Deliverables:

The following deliverables shall be provided as part of Task 1.4.

- *Prepared agendas for each meeting.*
- *Ongoing log of all decisions and conflict resolutions.*

Task 2 – Concept Development and Analyses

Concept Design Report includes the following activities:

- Concept Level Drawings
- Concept Level Design Report
- Concept Level Design Opinion of Probable Cost (OPCC)
- Concept Level Sediment Removal and Disposal Plan
- Recommended Steps for Obtaining Environmental Approval and Required Permits Based upon the Concept Level Design

Task 2.1: Concept Level Drawings

It is anticipated that approximately 5 drawings will be created to show the concept:

- Tunnel modifications
- The sediment removal route.

Deliverable:

The following deliverable shall be provided as part of Task 2.1.

- *Draft Concept Level Drawings using the most current Denver Water CAD standards.*

Task 2.2: Concept Level Design Report

A design report which shows supporting calculations shall include:

- Calculations evaluating the sediment removal rates.
- Necessary hydraulic calculations.
- Feasibility of mounting guard and control gates at upstream and downstream ends of tunnel.
- Operational constraints/risks (i.e., wear and tear on gates)

Deliverable:

The following deliverable shall be provided as part of Task 2.2.

- *A draft design report using the most current Denver Water CPPM standards.*

Task 2.3: Concept Level Design Opinion of Probable Cost (OPCC)

An OPCC which includes:

- Adequate detail to provide a -35% to +35% accuracy level.
- Highlighted cost items that are likely to be dependent upon economy or are not well defined and carry less confidence.
- Memorandum with assumptions and basis for each cost item.

Deliverable:

The following deliverable shall be provided as part of Task 2.3.

- *A draft memorandum with OPCC and assumptions, in accordance with the most current Denver Water CPPM standards.*

Task 2.4: Concept Level Design Sediment Removal and Disposal Plan

The concept level plan will:

- Outline the degree of difficulty in removal of sediments with this concept (e.g., flushing sediments from reservoir into bypass)
- Options for passing or capturing sediments downstream (e.g., Conduit No. 20 Diversion) and if captured, how and where to remove them.
- Give consideration to outage planning, and schedules for both the reservoir and the downstream water treatment facilities as it relates to reservoir water surface elevations required to implement the alternative.
- Identify any additional considerations required to implement the alternative.

Deliverables:

The following deliverables shall be provided as part of Task 2.4.

- *A draft sediment removal and disposal plan.*

Task 2.5: Recommended Steps for Obtaining Environmental Approval and Required Permits Based upon the Concept Level Design

This section will provide:

- A summary of all permitting requirements, based on the Consultant's past experience, from local to federal agencies that may have jurisdiction over the concept.
- An opinion of permit schedule.
- Probability of the permit being issued or denied.

Deliverable:

The following deliverable shall be provided as part of Task 2.5.

- *A draft summary report of the Environmental Approval Steps and Required Permits*

Project Deliverable

The primary deliverable for this project is a clear and concise report detailing the sediment management concept. The report will identify all project features, provide a narrative of the required operations of the facility, provide a detailed description of each of the permitting requirements, and an opinion of permit issuance outcome.

A general outline of the expected deliverable is outlined below:

- Concept Design Report, which will include:
  - Concept Level Drawings
  - Concept Level Design Report
  - Concept Level Design Opinion of Probable Cost (OPCC)
  - Concept Level Sediment Removal and Disposal
  - Recommended Steps for Obtaining Environmental Approval and Required Permits Based upon the Concept Level Design

Proposal Requirements

The proposal shall outline the Consultant's scope of services, which at a minimum must include the criteria set forth within this RFP, and the Consultant's approach to administer and complete the project. A detailed project approach will assist the Owner in understanding the Consultant's comprehension of the project and the opportunities and constraints that a project of this complexity may contain. At a minimum, the Proposal shall include:

- Cover Letter.
- Project approach including any unique solutions and clearly identifying all assumptions.
- Firm qualifications to perform the work including description of relevant past projects of similar scope and nature.
- Tailored resumes for key project personnel, including projects similar in nature and complexity to the Strontia Springs – Sediment Management Concept Development project, shall be provided for key personnel shown within the project organization chart. All key personnel proposed for the project must remain available for the entirety of the project, a change of project personnel will only be permitted in extreme circumstances and may be subject to a monetary penalty.
- Manpower labor estimate (work breakdown structure) by labor type/hours for the following major project tasks provided under Scope of Services. Include the corresponding hourly rates (an 11-inch by 17-inch format for the work breakdown structure is acceptable).
  - Task 1: Project Management and Administration
    - Task 1.1: General Project Management
    - Task 1.2: Project Management Plan
    - Task 1.3: Project Controls and Reporting
    - Task 1.4: Project Meetings
  - Task 2: Concept Analysis Report
    - Task 2.1: Concept Level Drawings
    - Task 2.2: Concept Level Design Report
    - Task 2.3: Concept Level Design Opinion of Probable Cost (OPCC)
    - Task 2.4: Concept Level Sediment Removal and Disposal Plan
    - Task 2.5: Recommended Steps for Obtaining Environmental Approval and Required Permits Based upon the Concept Level Design
- Detailed schedule with any deviations from the schedule included herein clearly identified and tied to the project approach.
- Written statement regarding the Consultant's eligibility to perform the work without a conflict of interest.
- Proposals shall be limited to 12 pages not including resumes (double-sided counted as 2 pages).

Selection Criteria

Owner will review the Proposals and make a selection based on best value while considering the following criteria:

Criteria	Standard	Weighting Factor
Project Personnel Qualifications	Do the assigned personnel have the skills and experience to provide a detailed and complete study? Do personnel have firsthand experience in this type of work?	3
Firm Qualifications	Does the firm have the appropriate support capabilities to meet the demands of the project? Have the firm done previous projects of this type of scope?	2
Proposed Approach, Project Plan and Schedule	Does the proposal show an understanding of the project objectives and the results that are desired from the project?	3
Cost and Work Hours	Do the work hours presented accurately reflect the level of effort required to complete the project?	2

The scale of the criteria is from 1 to 10, with 1 being a poor rating, 5 being an average rating, and 10 being and outstanding rating. All criteria will be multiplied by the associated weighting factor to give a weighted criteria score. The weighted criteria scores will be summed for a cumulative score. The maximum possible cumulative score is 100.

Proposal Submittal

Selection of a Consultant will be based on the selection criteria described above. The Proposal shall address all the selection criteria.

Costs associated with Proposal preparation shall be borne entirely by the proposing Consultant. Proposal information becomes property of the Owner.

Firms are recommended to access and become familiar with a copy of the most recent version of Owner's CPPM and CPCS at no cost to the Owner. Consultants will be responsible for meeting the requirements of Denver Water's CPPM.

Four hard copies and one electronic copy (pdf on a Windows compatible Hi-Speed USB Flash Drive), of the Consultant's Proposal shall be submitted by 2:00 PM, local time, on Monday, July 12, 2016 to Brett Cochran, Project Manager, Denver Water, 1600 West 12th Avenue, Denver, Colorado 80204. Please contact Brett Cochran at 303-628-6070 with questions regarding this request.